

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Withdrawn) A polypeptide that binds APRIL comprising the sequence of Formula I: C-X₂-X₃-X₄-X₅-Y-X₇-D-X₉-L X₁₁-X₁₂-X₁₃-C-K-X₁₆-C-X₁₈-X₁₉-X₂₀-C-X₂₂-X₂₃-X₂₄-X₂₅-X₂₆-X₂₇-X₂₈-X₂₉-C-X₃₁-X₃₂-X₃₃-C (Formula I) wherein X₁₁ is any amino acid residue except A; wherein X₂, X₃, X₄, X₅, X₇, X₉, X₁₁, X₁₂, X₁₃, X₁₆, X₁₈, X₁₉, X₂₀, X₂₂, X₂₃, X₂₄, X₂₅, X₂₆, X₂₇, X₂₈, X₂₉, X₃₁, X₃₂, X₃₃ are any amino acid except cysteine.
2. (Withdrawn) The polypeptide according to claim 1, wherein X₁₁ is L, I or V.
3. (Withdrawn) The polypeptide according to claim 1, wherein X₁₈ is selected from the group consisting of Q, D and A.
4. (Withdrawn) The polypeptide according to claim 1, wherein if X₂₀ is Y, then X₁₈ is D.
5. (Withdrawn) The polypeptide according to claim 1, wherein X₂₀ is R.
6. (Withdrawn) The polypeptide according to claim 1, wherein the polypeptide comprises an amino acid sequence that is 85% or more identical to a CRD sequence of a native BCMA.
7. (Currently Amended) The polypeptide according to claim 1, wherein the sequence of Formula I is selected from the group consisting of:
CSQNEYFDSLLHACKPCQLRCSSNTPPLTCQRYC (SEQ ID NO: 6),
CSQNEYFDSLLHACKPCDLRCSSNTPPLTCQRYC (SEQ ID NO: 7),
CSQNEYFDSLLHACKPCDLYCSSNTPPLTCQRYC (SEQ ID NO: 8), and
CSQNEYFDSL VHACKPCQLRCSSNTPPLTCQRYC (SEQ ID NO: 9).

8. (Currently amended) A polypeptide that binds BAFF comprising the sequence of Formula II: C-X₂-X₃-X₄-X₅-X₆-X₇-D-X₉-L-X₁₁-X₁₂-X₁₃-C-X₁₅-X₁₆-C-X₁₈-X₁₉-X₂₀-C-X₂₂-X₂₃-X₂₄-X₂₅-X₂₆-X₂₇-X₂₈-X₂₉-C-X₃₁-X₃₂-X₃₃-C (Formula II) (SEQ ID NO: 10) wherein X₆ is selected from the group consisting of Y, A, D, S and F; wherein X₁₁ is any amino acid residue except A; wherein X₁₅ is any amino acid residue except A or K; wherein X₁₈ is selected from the group consisting of Q, D and A; wherein X₂₀ is selected from the group consisting of R, Y and A; wherein X₂, X₃, X₄, X₅, X₇, X₉, X₁₀, X₁₂, X₁₃, X₁₆, X₁₉, X₂₂, X₂₃, X₂₄, X₂₅, X₂₆, X₂₇, X₂₈, X₂₉, X₃₁, X₃₂ and X₃₃ are any amino acid except cysteine; and provided that the Formula II does not comprise the sequence CSQNEYFDSLHACIPCQLRCSSNTPPLTCQRYC.

9. (Original) The polypeptide according to claim 8, wherein X₁₁ is L, I or V.

10. (Original) The polypeptide according to claim 8, wherein X₁₅ is I, V or A.

11. (Original) The polypeptide according to claim 8, wherein X₁₈ is D and X₂₀ is Y.

12. (Withdrawn) The polypeptide according to claim 1, wherein the polypeptide comprises an amino acid sequence that is 85% or more identical to a CRD sequence of a native BCMA.

13. (Currently amended) The polypeptide according to claim 8, wherein the sequence of Formula II is selected from the group consisting of:

CSQNEAFDSLHACIPCQLRCSSNTPPLTCQRYC (SEQ ID NO: 13),

CSQNESFDSLHACIPCQLRCSSNTPPLTCQRYC (SEQ ID NO: 14),

CSQNEFFDSLHACIPCQLRCSSNTPPLTCQRYC (SEQ ID NO: 15),

CSQNEYFDSLHACIPCDLRCSSNTPPLTCQRYC (SEQ ID NO: 16),

CSQNEYFDSLHACIPCQLYCSSNTPPLTCQRYC (SEQ ID NO: 17), and

CSQNEYFDSLHACIPCDLYCSSNTPPLTCQRYC (SEQ ID NO: 18).

14. (Withdrawn) The polypeptide according to claim 1, wherein the Formula I further comprises

the sequence NSVKGT linked carboxy-terminal to the thirty-fourth residue.

15. (Previously presented) The polypeptide according to claim 8, wherein the Formula II further comprises the sequence NSVKGT linked carboxy-terminal to the thirty-fourth residue.

16. (Withdrawn) The polypeptides according to claim 1, wherein the polypeptide comprises sequences N-terminal, C-terminal or both N-terminal and C-terminal to the sequence of Formula I or Formula II that are heterologous to a native BCMA polypeptide.

17. (Original) A polypeptide that is a BCMA variant having an amino acid sequence derived from a mammalian BCMA polypeptide wherein at least one amino acid residue corresponding to the amino acid residue selected from the group Q10, E12, Y13, F14, I22, Q25 and R27 of FIG. 5 is altered.

18. (Withdrawn) The polypeptide according to claim 17, wherein the I22 has been substituted with K.

19. (Withdrawn) The polypeptide according to claim 17, wherein the mammalian BCMA polypeptide is altered at a amino acid residue corresponding to I22 and an amino acid residue corresponding to any one of the residues F14 and Q25 of FIG. 5.

20. (Original) The polypeptide according to claim 17, wherein the mammalian BCMA polypeptide is altered at a residue corresponding to R27 and a residue corresponding to any one of the residues Y13 and Q25 of FIG. 5.

21. (Original) The polypeptide according to claim 17, wherein Q25 has been substituted with D and R27 has been substituted with Y.

22. (Previously presented) The polypeptide according to claim 8, wherein the polypeptide

comprises an amino acid sequence that is 85% or more identical to a CRD sequence of a native BCMA.

23. (Currently amended) The polypeptide according to claim 1 8, wherein the polypeptide further comprises a leucine zipper.

24. (Currently amended) The polypeptide according to any claim 1 8, wherein the polypeptide is attached to a non-proteinaceous polymer.

25. (Currently amended) The polypeptide according to claim 1 8, wherein the polypeptide is an immunoadhesin.

26. (Currently amended) The polypeptide according to claim 1 8, wherein the polypeptide is an antibody.

27. (Original) The polypeptide according to claim 26, wherein the antibody is selected from the group consisting of a F(ab) antibody, F(ab')₂ antibody and a scFv antibody.

28. (Currently amended) The polypeptide according to claim 1 8, wherein the polypeptide is attached to an agent selected from the group consisting of a growth inhibitory agent, a cytotoxic agent, a detection agent, an agent that improves the bioavailability of the polypeptide and an agent that improves the half-life of the polypeptide.

29. (Original) The polypeptide according to claim 28, wherein said cytotoxic agent is selected from the group consisting of a toxin, an antibiotic and a radioactive isotope.

30. (Withdrawn) A nucleic acid molecule encoding the polypeptide according to claim 1.

31. (Withdrawn) A vector comprising the nucleic acid molecule according to claim 30.

32. (Withdrawn) A host cell comprising the nucleic acid molecule according to claim 30 or a vector comprising the nucleic acid molecule.
33. (Currently amended) A composition comprising the polypeptide according to claim + 8, optionally further comprising a pharmaceutically acceptable carrier.
34. (Currently amended) A composition comprising the polypeptide according to claim + 8, optionally further comprising a second therapeutic agent selected from the group consisting of an agent for treating an immune-related disease, a chemotherapeutic agent and a cytotoxic agent.
35. (Withdrawn) A method for producing a polypeptide comprising the step of culturing a host cell comprising the vector according to claim 31 under conditions suitable for expressing the polypeptide from the vector.
36. (Withdrawn) A method for identifying an inhibitor of APRIL binding to BCMA comprising the step of detecting an inhibitor that partially or fully blocks the binding of the polypeptide according to claim 1 and APRIL.
37. (Withdrawn) A method for identifying an inhibitor of BAFF binding to BCMA comprising the step of detecting an inhibitor that partially or fully blocks the binding of the polypeptide according claim 8 and BAFF.
38. (Withdrawn) A method for inhibiting native APRIL binding to native BCMA comprising the step of contacting an APRIL polypeptide with the polypeptide according to claim 1.
39. (Withdrawn) A method for inhibiting native BAFF binding to native BCMA comprising the step of contacting a BAFF polypeptide with the polypeptide according to claim 8.

40. (Withdrawn) A method for inhibiting native APRIL and/or native BAFF binding to native BCMA comprising the step of contacting an APRIL polypeptide or a BAFF polypeptide with the polypeptide according to claim 17.

41. (Withdrawn) A method for inhibiting native APRIL binding to native BCMA in a mammal comprising the step of administering the polypeptide according to claim 1 in an amount effective to inhibit binding between APRIL and BCMA in the mammal.

42. (Withdrawn) A method for inhibiting native BAFF binding to native BCMA in a mammal comprising the step of administering the polypeptide according to claim 8 in an amount effective to inhibit binding between BAFF and BCMA in the mammal.

43. (Withdrawn) A method for inhibiting native BAFF and/or native APRIL binding to native BCMA in a mammal comprising the step of administering the polypeptide according to claim 17 to the mammal.

44. (Withdrawn) A method for treating an immune-related disease in a mammal suffering from an immune disease comprising the step of treating the mammal with a therapeutically effective amount of the polypeptide according to claim 1.

45. (Withdrawn) The method according to claim 44, wherein the immune related disease is selected from the group consisting of rheumatoid arthritis, multiple sclerosis and systemic lupus erythematosus.

46. (Withdrawn) A method for treating a cancer in a mammal suffering from a cancer comprising the step of treating the mammal with a therapeutically effective amount of the polypeptide according to claim 1.

47. (Withdrawn) The method according to claim 46, wherein said cancer is selected from the

group consisting of leukemia, lymphoma, or multiple myeloma.

48. (Withdrawn) The method according to claim 46, wherein said cancer is a gastrointestinal cancer or a glioblastoma.

49. (Withdrawn) A method for treating a T-cell mediated disease in a mammal suffering from a T-cell mediated disease comprising the step of treating the mammal with a therapeutically effective amount of the polypeptide according to claim 1.

50. (Withdrawn) The method according to claim 49, wherein the T-cell mediated disease is selected from the group consisting of graft rejection, graft versus host disease (GVHD) and inflammation.